which the present invention is applied; ~~and~~

Fig. 4 provides a flow chart of a signal processing method for forming an ideal beam pattern in the two-dimensional array antenna system as shown in Fig. 3.

Preferred Embodiment of the Invention

Hereinafter, preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings.

<Design of one-dimensional optimum array antenna>

At first, it will be described in detail for design of a one-dimensional optimum array antenna.

Fig. 1 is an exemplary diagram of a one-dimensional array antenna system in a CDMA telecommunications network, to which the present invention is applied and Fig. 2 shows a flow chart of a signal processing method for forming an ideal beam pattern in the one-dimensional array antenna system as shown in Fig. 1.

Referring to Fig. 1, M signals $S_1(t)$, $S_2(t)$, . . ., $S_M(t)$ are applied to N receiving antennas. In Fig. 1, the array antenna includes array antenna elements 10, a down-converter and demodulator 20, a multiplier 30, and an adder 40. $x_m(t)$ is a signal arrived at an m-th antenna, ω_m is a complex weight vector applied to the arrived signal at the m-th antenna to form a desirable beam pattern, and y(t) is an output of the array antenna.